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Biodiesel Plant Development Seminar

Larry Breeding

Biodiesel Operations

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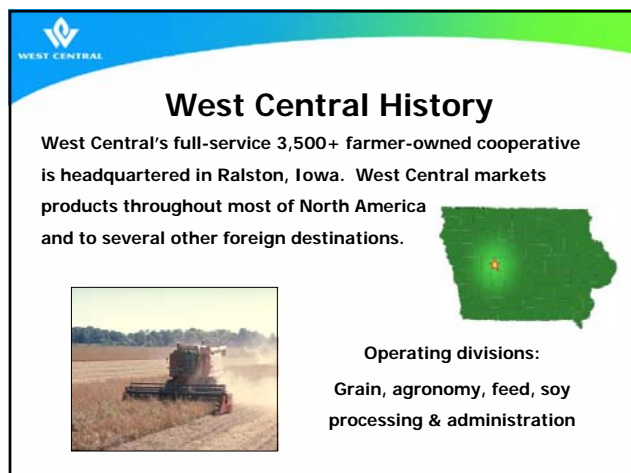
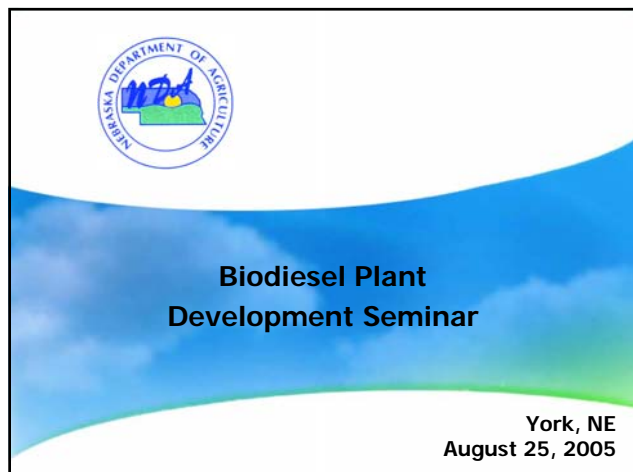


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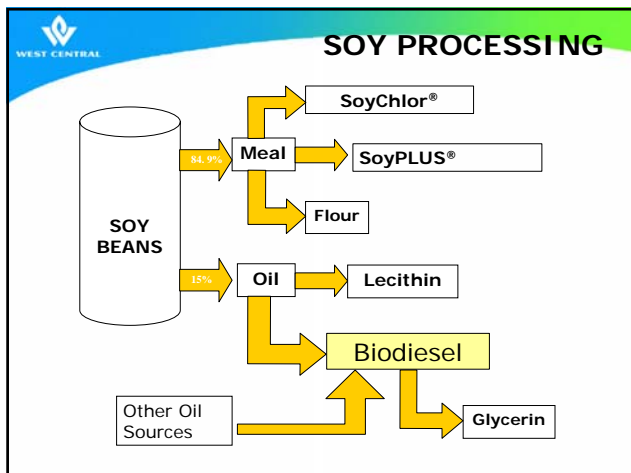
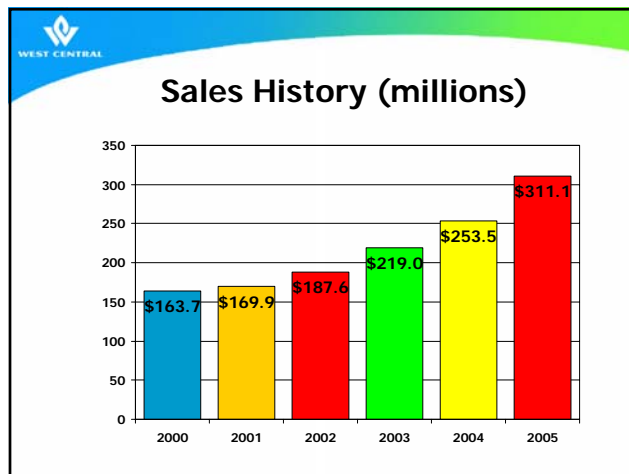
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Annual Operations

- West Central employs 228 people
- Grain – markets 72 million bushels
- Agronomy – joint venture with Agrilience
- Feed – processes over 115,000 tons
- Soy Processing – processes 8.4 million bushels of soybeans and processes 90 million pounds of soy oil into methyl esters




Soy Nutrition Products

- SoyPLUS® (Dairy cow protein)
- SoyChlor® (Dairy cow treatment)
- Lecithin
- Soy Flour


BIODIESEL PRODUCTION

Batch Technology 1996 →




Computer Aided Drafting Design

Continuous Flow Technology 2003 →





West Central Biodiesel Plant

West Central's 12 million gallon capacity biodiesel plant is the first continuous-flow biodiesel plant in the United States. The biodiesel plant processes 90 million pounds of the co-ops soybean oil into biodiesel and other methyl ester products each year.



Why Biodiesel?


- Reduce Emissions
- Operational Benefits -Lubricity
- Energy Balance
- Expanded Use of Soy Crops
- Nation's Energy Goals





Reduce Emissions

2000: Biodiesel becomes only alternative fuel to meet EPA Health Effects Testing under the Clean Air Act


- ✓ Carbon Monoxide: 50% lower than petroleum diesel
- ✓ Particulate Matter: 30% lower than petroleum diesel
- ✓ Hydrocarbons: 93% lower than petroleum diesel






Operational Benefits

- B2 has up to 66% more lubricity than #2 diesel
- Exceptional lubricity = longer engine injector life
- Superior engine performance compared to other alternative fuels
- Use in unmodified diesel engines
- Doesn't require specialized mechanics to service engines





Energy Balance of Biodiesel

- Units of energy produced for 1 unit of energy consumed *

■ Petroleum	0.88 units produced
■ Ethanol	1.62 units produced
■ Soy Biodiesel	3.24 units produced


* USDA




Expanded use for Soy Crops



1 bushel of soybeans creates 1.4 gallons of pure biodiesel (B100)



Nation's Energy Goals



Increase energy independence with a domestically produced renewable resource

WEST CENTRAL

USES FOR BIODIESEL

U.S. MILITARY UNDERGROUND MINING SCHOOL BUSES HOME HEATING

AGRICULTURAL SECTOR CONSTRUCTION MUNICIPALITY FLEETS FERRIES

WEST CENTRAL

REG **WEST CENTRAL®**

Engineering Construction Documentation Procurement Risk Management
Laboratory Process Technology Training Marketing Management

- Combined resources of leaders in their industries
- Design, build and operating the largest biodiesel plants in U.S.
- Producing and marketing biodiesel since 1996
- 60 years of process engineering experience
- High quality construction expertise
- Practical processing experience
- Providing quality product specifications

WEST CENTRAL

RENEWABLE ENERGY GROUP

- Build turnkey biodiesel plants
- Assist in site selection
- Process design and engineering
- Construction and installation
- Computerized process controls
- Stringent process safety management

WEST CENTRAL

RENEWABLE ENERGY GROUP


- Laboratory set-up
- Safety training
- Real-world production training
- Start up services
- Research and Development
- Updates on process



MANAGEMENT



- General Manager**
 - Manage and oversee plant administration and operations
 - Implement and oversee business plan
 - Direct, promote and coordinate personnel
 - Maintains relationships with investors
 - Includes financial and accounting systems
- Production Manager**
 - Plan and schedule biodiesel production
 - Oversee Quality control
 - Manage all facility and equipment maintenance
 - Assist with budgeting and control labor costs and plant expenses
 - Implement processing changes, new technologies and other production projects



PROCUREMENT

- Chemicals**
 - Procure all basic chemical inputs needed for production, including catalyst
 - Negotiate for discounts where obtainable
- Fats and Oils Feedstock**
 - Provide analysis and audit feed stock suppliers
 - Purchase feed stocks to meet production schedules
 - Provide transportation logistics and scheduling of feed stock deliveries




SALES & MARKETING

- Biodiesel**
 - Transportation and logistics
 - Market analysis of biodiesel supply & demand
 - Invoicing and accounts receivable management
 - Market access to West Central distribution channels
- Co-Products**
 - Glycerin
 - Fatty Acid







SUMMARY

West Central	REG
<ul style="list-style-type: none"> Marketing/Procurement Value Package <ul style="list-style-type: none"> National and International customer base Multiple feed stock origination Extensive distribution network Nationally recognized brand name Experience <ul style="list-style-type: none"> Producing and marketing biodiesel since 1996 	<ul style="list-style-type: none"> Innovative Technology <ul style="list-style-type: none"> Continuous flow process Continual research and development Environmental systems to insure low emissions Highest safety standards Cost effective processes Experience <ul style="list-style-type: none"> Design, build and operate the largest biodiesel plants in North America



WEST CENTRAL®



Thank you